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Surveys

Evaluating the Contribution of Community-based Ecotourism (CBET) to Household Income and Livelihood Changes: A Case Study of the Chambok CBET Program in Cambodia

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ABSTRACT

Community-based ecotourism (CBET) has become a popular tool, especially in developing countries, for biodiversity conservation and livelihood improvement, but there is a lack of studies that use quantitative data to evaluate the effectiveness of CBET using a before-after-control-intervention (BACI), BA, or CI design. We conducted a case study of the flagship Chambok CBET program in Cambodia to quantify the contribution of CBET to household income and livelihood changes for CBET and non-CBET members. We conducted an interview survey of 173 households (77 CBET and 96 non-CBET members) that were selected systematically from every two households along roads within the same villages. There was no significant difference between the total income of member and non-member households; the median CBET income was 1.22 USD per month, which is only 1.65% of the total income. The inequality of income from CBET among the CBET members was higher than that from other income sources. The perceptions of livelihood changes differed considerably before and after the establishment of the Chambok CBET program, although this difference was not attributed to CBET but rather to general socioeconomic changes in the country. We conclude that it is challenging to employ CBET to achieve poverty reduction and livelihood improvement.

1. Introduction

Community-based natural resource management (CBNRM) has increasingly been applied, especially in tropical developing countries, to seek "win–win" outcomes and conserve natural resources while improving the welfare and livelihoods of local populations (Leach et al., 1999; Berkes, 2007). Several studies have examined various aspects of CBNRM such as planning, implementation, and monitoring and evaluation. One important aspect is the evaluation of the effectiveness of CBNRM, which is critical for improving existing projects and/or effectively establishing new ones. However, one significant concern regarding such evaluations is the lack of quantitative data obtained (Kiss, 2004; Stronza, 2007; Mountjoy et al., 2016; Sills et al., 2017). In particular, much fewer quantitative data have been collected in relation to the effects of CBNRM on the welfare of local people than in relation to biological impacts (Bowler et al., 2011; Ameha et al., 2014). Hajjar et al. (2016) systematically reviewed the peer-reviewed literature on community forestry and found that most studies that evaluated socioeconomic outcomes depended on qualitative data, which made comparisons across cases difficult.

Recently, Sills et al. (2017) have examined study designs and methods for evaluating the impacts of conservation-related interventions on local well-being. The key challenge involved ruling out alternative explanations such as contemporaneous economic and policy changes and selection bias. The most promising approach to dealing with such a challenge is the collection of before-after-control-intervention (BACI) data, but such data are rare, apart from limited examples, because of the feasibility and cost of collecting data outside the intervention area (control) at baseline (prior to the intervention) (Sills et al., 2017). A more widely used approach is to collect data after the intervention, both in the intervention area and in similar areas not affected by the intervention, to compare outcomes for control and intervention (CI) households. Another common approach is to compare outcomes before and after (BA) the intervention among households subject to the intervention (Sills et al., 2017).

Community-based ecotourism (CBET) is a form of CBNRM. CBET

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projects have increasingly been established for natural resource conservation and local community livelihood improvement (Kiss, 2004; Khanal and Babar, 2007). CBET is defined as responsible travel to natural areas that conserves the environment and improves the well-being of local people (TIES, The International Ecotourism Society, 1990). Most CBET projects produce modest cash benefits, but such economic impacts are difficult to judge in the absence of specific data, baseline and contextual information, and quantitative analyses (Kiss, 2004). Ecotourism has achieved mixed results, and is not a panacea, as there have been many success stories, but also many failures (Coria and Calfucura, 2012; Das and Chatterjee, 2015). Proper monitoring and evaluation can reinforce the long-term conservation effects of ecotourism projects (Das and Chatterjee, 2015), and there is a need for a more careful approach to project design and implementation (Coria and Calfucura, 2012). However, there has been a dearth of studies adopting a BACI design, or even a CI or BA design, to evaluate the impact of CBET on household incomes. To our knowledge, only a study by Stronza (2007) adopted a BA design for impact evaluation of CBET in Peru. It was concluded that new income from CBET enabled greater market consumption and expansion of production, although employment in CBET led to a general decline in farming and hunting (Stronza, 2007).

In 2013, there were 56 ecotourism sites in various regions in Cambodia; in the northeast, in the Tonle Sap area, along the south coast, and in the southwest (Reimer and Walter, 2013). It is predicted that by 2020, ecotourism could attract one million international and five million national tourists (Rann, 2013). The Chambok CBET program is well known as a flagship model of CBET in southwestern Cambodia and has won several awards, including one in 2013 for socially responsible tourism (Va et al., 2013). The Chambok CBET program is thought to be able to engage local people to protect forests, as well as to improve local livelihoods (Men, 2006). However, there is only limited quantitative data regarding the effectiveness of the Chambok CBET program and other such programs in Cambodia.

The objective of this study was to examine the contribution of CBET to household income and livelihood changes at the Chambok CBET site in Cambodia. The specific aims of our study were to collect (1) CI data relating to household income to compare two groups living in Chambok Commune, one of which comprised CBET members ("intervention") while the other comprised non-CBET members ("control"), and (2) BACI data on local perceptions in relation to livelihood to compare the situation "before" and "after" the start of the CBET project for both CBET members and non-CBET members. Data collection was by means of household interviews conducted in 2011, 9 years after the start of the CBET project. It was difficult for people to recall details regarding income before the CBET project, so we only collected current CI data in relation to income. In contrast, local people were able to recall livelihood changes in the past prior to the CBET program, as well as changes since the commencement of the CBET project. It should be noted that our BACI data on livelihood changes are based on people's recall, rather than on time series before and after the CBET intervention.

2. Study Area and Methods

2.1. Study Area

The Chambok CBET site was selected as a case study. It is located in Chambok Commune (8257 ha), part of which is within Kirirom National Park (KNP) (35,000 ha) in the Phnom Sruoch District, Kampong Speu Province, southwest Cambodia (see Fig. 1). There were 761 households comprising 3670 residents in four villages in Chambok Commune in 2012. Half of the communal area is situated in KNP. Agricultural income is a common source of income in rural areas. The people in the area mainly engage in agriculture (rice is planted in May and harvested in December), and supplement their incomes from secondary activities, such as raising animals, hunting, collecting non-timber forest products (NTFPs), wage labor work, working outside the commune, ecotourism-related work, fishing, and operating small grocery stores.

Chambok Commune was a former Khmer Rouge stronghold, and locals were relocated to Treng Trayoeung Commune, a major market center, until 1998. After national unification, the community returned to their homes and rebuilt their lives, which depended on forest resources and agriculture. Based on a study by Men (2006), the arable lands in the commune were limited and rice production was low. The study also found that the community relied heavily on forest resources and forest-related jobs, such as timber logging, charcoal, and firewood production. The forest resources were severely degraded because of overexploitation, and no conservation or protection measures were established. Charcoal kilns were commonly used by people in the commune to produce charcoal to sell, and a vast majority of household members harvested timber both nearby and in areas distant from their villages. To protect and better use the natural resources, the local environmental and livelihood development organizations Mlup Baitong and Lutheran Worldwide Federation Cambodia have worked with the local community and authorities to establish conservation zones, including three community-protected areas (CPAs) (in KNP), three community forestry areas (CFAs) (outside KNP), and the Chambok CBET site since 2002. This has involved the participation of district, provincial, and ministry officials. The CPAs are located in KNP under the control of the Ministry of Environment of Cambodia, while the CFAs are located outside the national park under the control of the Forestry Administration (see Fig. 1). These two types of CBNRM have different names but have the same aims, namely, forest conservation and community livelihood improvement. CBET activities commenced in 2002, and Mlup Baitong coordinated the CBET work until 2010, providing support through funding and capacity building. Since then, local people have started to manage and operate the CBET site by themselves, even though Mlup Baitong is still acting as an advisor to the CBET committee on an as-needed basis.

The CBET site includes a 40-meter waterfall, the surrounding forest, a trekking trail through the forest, and local streams. The CBET committee facilitates the planning and management of the CBET site. There are no strict rules in relation to becoming a CBET member, which involves registration by the CBET committee, enabling new members to participate in CBET activities. All Cambodian citizens who are living in Chambok Commune can become CBET members and work for tourism-based businesses. Tourism activities include forest trekking from villages to the waterfall, bird watching, visiting a bat cave, ox-cart riding, cycling, homestays, camping, swimming, music and dance, and handicraft production. CBET members can earn wages for providing services such as acting as guides, ox-cart riding, homestays, selling handicrafts, and cooking. The CBET committee members also receive wages. The main sources of income for the CBET committee are entrance and parking fees. Since 2003, an average of 1500 people per year have visited the Chambok CBET site. In 2009, the CBET program generated 19,707 USD, of which 25% supports forest conservation, 10% goes to community development, 5% to the local Buddhist temple, 5% to local government, 10% to an emergency fund, 5% to a community fund, and the remaining 40% to ecotourism service providers (Walter and Reimer, 2012).

The study site has annual rainfall ranging from 1200 to 2600 mm (NIS, National Institute of Statistics, 2008). The wet season is from May to September, the dry season is from October to April, and the monthly average temperature ranges from 23 to 31 °C. Some parts of the commune comprise small mountains, whereas the Chambok conservation zones (the three CFAs and three CPAs) consist of both hills and plains with elevations ranging from 60 to 640 m above sea level. Based on a forest cover map that was generated in 2010 by the Forestry Administration in Cambodia, the vegetation in Chambok Commune consists of semi-evergreen forests, deciduous forests, and some bamboo forests. Deciduous forests account for 44% of the total commune land area,